

# Memorandum

MIAMI-DADE  
COUNTY

**DATE:** December 18, 2007

Agenda Item No. 12(B)2

**TO:** Honorable Bruno A. Barreiro, Chairman,  
and Members, Board of County Commissioners

**FROM:** George M. Burgess,  
County Manager

**SUBJECT:** Report on Emergency Alert Systems

The attached report was prepared by the Department of Emergency Management & Homeland Security (DEM/HS) in response to Resolution 592-07. Specifically, information was requested related to the feasibility and effectiveness of establishing a warning system that alerts the public of imminent severe weather conditions such as tornados using methods such as sirens and automated phone and text message warnings.

## Executive Summary

Current public warning capabilities consist of two national avenues for communicating among emergency managers and warning originators; two federally led systems for communicating directly to the public; and a wide variety of warning systems designed, installed, and operated by private industry. Miami-Dade County currently has access to a variety of these systems to ensure information is available to the public during times of emergencies. There are several systems in place that include products maintained and operated by federal agencies and products for sale by the private sector. Some of the emergency alert systems operated by various government agencies include:

- National Warning System (NAWAS)
- NOAA Weather Wire Service (NWWS)
- Emergency Alert System (EAS)
- NOAA "All-Hazards" Emergency Notifications-Known as the NOAA Weather Radio (NWR)
- Emergency Alert System formerly known as the Emergency Broadcast System

In addition to the federal agencies there are systems available at the state level. The State of Florida and its seven domestic security regions have internal systems in place to share sensitive, homeland security related information. All of these systems require security clearances and are used by public safety organizations and their personnel. Several commonly used programs include the Homeland Security Information Network, ThreatCom, and Law Enforcement Online. The attached report from DEM/HS provides more details on each of these systems.

The private sector has hundreds of products that are sale and can be used as an emergency alert system. Reverse 911 Telephone Notification System allows first responders to use a reverse 911 software program to notify residents and businesses about a potential emergency circumstance by telephone. Media-based emergency notification systems offer email subscription notifications of current events such as weather events, breaking news, traffic delays, etc. For example, CNN, NBC and other networks provide these services through email, blackberry, and PDAs free of charge. Lastly, audible sirens can be used similar to the Florida Power & Light Turkey Point Nuclear Power Plant sirens currently being used for emergency alerting.

**Miami-Dade Alerts**

As you know, DEM/HS is now utilizing a database system that allows for emergency alert notification. The one-year pilot program consists of three functions: a community alert notification, an employee emergency alert, and a college/university student and faculty alert. DEM/HS is the system administrator and works closely with the vendor since it is a vendor-hosted system.

The Community Alert Notification allows system administrators to alert residents and businesses of significant events that may affect them. Similar to the media-related alerts mentioned above, this system is also subscriber-based and uses e-mail accounts, cell phone text messaging, and other handheld devices capable of receiving text messages. The system is currently being used to alert subscribers of emergencies related to severe weather – hurricane watch/warning, evacuation and curfew orders, food and water distribution points, and other public safety related information. Subscribers can sign up on the County's website and learn more about how the system works.

Each of these systems is effective for different purposes. While no one system will provide total coverage or has the potential to reach all residents at any given time, several of these systems combined can reach a vast number of people.

Monies have been requested at the federal and state level to develop a system that integrates all of these types of warning systems into one central point for better monitoring. The 2008 State and Federal Legislative package includes this request as a priority. The development of an Information Collection Point (ICP) will serve as the central collection and dissemination of information for county agencies and municipalities. The ICP will tie into already existing dispatch centers, information collection centers, FDOT traffic cameras, and numerous emergency alert systems. You will continue to be advised of the status of this request as we approach the next legislative session.

  
Assistant County Manager

# Memorandum

MIAMI-DADE  
COUNTY

**Date:** November 8, 2007

**To:** George M. Burgess  
County Manager

**From:** Charles Douglas Bass, Director *[Signature]*  
Department of Emergency Management and Homeland Security

**Subject:** Report Relating to Emergency Alert Systems

This report is provided in response to Resolution R-592-07 adopted by the Board of County Commissioners on May 8, 2007. Specifically, information was requested related to the feasibility and effectiveness of establishing a warning system that alerts the public of imminent severe weather conditions such as tornados. The system would use methods such as sirens, and automated phone and text messaging warnings.

## **Background**

Current public warning capabilities consist of two national avenues for communicating among emergency managers and warning originators; two federally led systems for communicating directly to the public; and a wide variety of warning systems designed, installed, and operated by private industry. We currently employ a variety of these systems to ensure information is available to the public during times of emergencies.

## **National Warning System (NAWAS)**

The NAWAS is the primary national system for emergency communications among federal, state, and local emergency operations centers. The Federal Emergency Management Agency (FEMA) operates two national warning centers: the FEMA Operations Center (FOC) and the FEMA Alternate Operations Center (FAOC).

NAWAS has a dedicated, 24-hour specialized telephone line with 1,660 terminals that can be activated simultaneously but are typically used in a hierarchical manner based on the region of concern. The FOC and FAOC can, with the push of a button, activate terminals for the entire nation, specific FEMA regions, or individual states using 10 regional circuits accessing 300 terminals at primary and alternate state warning points typically located at the state emergency operations center and the state police dispatch center. The state warning points can then activate terminals at local NAWAS primary warning points usually located at county emergency operations centers, such as our own EOC, law enforcement dispatch centers, or fire dispatch centers. State warning points are responsible for relaying most national information within their states and for relaying local information to other states when appropriate. All Weather Forecast Offices of the National Weather Service (NWS) have NAWAS terminals or equivalent. The Miami-Dade County Emergency Operations Center (EOC) can then disseminate this information through appropriate communication systems to the public.

## **NOAA Weather Wire Service (NWWS)**

A critical part of the National Weather Service's mission is the dissemination of severe weather warnings. NWWS is a satellite data collection and dissemination system operated by the NWS, whose broadcasts can be received anywhere in the United States and Puerto Rico. Its purpose is to provide state and federal government, commercial users, and private citizens with timely delivery of meteorological, hydrological, climatologically, geophysical, and all-hazards emergency information from 141 NWS offices, the NOAA Space Weather Facility, and the U.S. Geological Survey's National Earthquake Information Center. NWWS delivers priority-warning products to

users in less than 10 seconds. Warning messages contain embedded digital information identifying the specific threat and area at risk. NWWWS subscribers select the suite of products of interest to them. NWWWS disseminates critical information to millions through radio, television, local emergency management networks and the private weather-forecasting industry. NWWWS can activate the Emergency Alert System (EAS) or provide warning information for non-EAS broadcast.

The NWS also operates a free companion service, Emergency Managers Weather Information Network (EMWIN), which is broadcast on multiple government environmental satellites delivering as part of its product suite the same critical warning products as the NWWWS. EMWIN has lower end-user costs and is increasingly used by thousands of the Nation's emergency managers, broadcasters, commercial users and private citizens to obtain environmental and emergency information. The Miami-Dade Department of Emergency Management and Homeland Security subscribes to EMWIN and is in the process of incorporating all 35 municipalities into the EMWIN services.

#### **Emergency Alert System (EAS)**

The EAS is our primary national system for warning citizens directly. The change from the Emergency Broadcast System (EBS) to the EAS occurred on January 1, 1997. The EAS serves two functions:

- Provide the President with the capability to deliver immediate communications and information to the general public at the National, state and local area levels during periods of national emergency.
- When not being used by the President, provide the heads of state and local government, or their designated representatives with a means of emergency communications with the public in their state or local area.

The EAS operates under regulations specified by the Federal Communications Commission (FCC). Essentially, all 14,000+ radio and television broadcast stations and 10,000+ cable systems in the United States are required to install and test EAS equipment and rebroadcast a Presidential message that could contain warning or emergency information. Any station that does not participate is mandated to go off-the-air for the duration of the message. At the state level, EAS is a voluntary, cooperative effort and operates as an unfunded federal government mandate, relying almost totally on the volunteer efforts of industry as well as state and local officials.

#### **NOAA "All-Hazards" Emergency Notifications-Known as the NOAA Weather Radio (NWR)**

The other primary national method for delivering warning messages to the public today is the NWR, an audio broadcast of weather information and warnings. The signals are accessible to 95 percent of the American population in 50 states, Puerto Rico, the Virgin Islands, Guam, and the Mariana Islands. More than 770 NWR stations broadcast locally specific programs from 122 NWS offices. This system benefits from the use of dedicated, secure government spectrum and the ability to send direct warnings or messages from the government to the public.

Warnings have embedded digital information that identifies the specific threat and area at risk. This coded information, identical to EAS coded information, can trigger alarms on low-cost programmable receivers that allow listeners to select the locale and warning events that are important to them. NWR and EAS messages can be sent to specific geographic regions dictated by distance from the transmitter and specified by codes for specific counties.



Many brands and types of NWR receivers are available. Some are now being built into car radios, televisions, and other general use devices. The receivers provide warning access to the deaf and hearing impaired community. Many of these receivers have the important technical capability to "wake themselves" when not in use to alert users of an emergency. Some commercial radio, television, and cable TV stations, depending on their state EAS plans, have EAS equipment installed that include a built-in NWR receiver programmable to automatically and immediately rebroadcast NWR warnings as EAS activation. The warnings received over NWR may also be used at the discretion of broadcasters as non-EAS broadcasts. The Miami-Dade Department of Emergency Management and Homeland Security has provided NWR to schools, hospitals, and all municipalities.

#### **Regional (For Official Use) Notification System**

The State of Florida is divided into several security regions for the purposes of the Urban Area Security Initiative and Homeland Security. Miami-Dade is a member of Region 7 along with Broward, Palm Beach, and Monroe Counties. The State and its regions have several internal systems in place to share sensitive, homeland security related information. The Homeland Security Information Network (HSIN), ThreatCom, and Law Enforcement Online (LEO) are several commonly used programs. All of these systems require security clearances and are used by public safety organizations and their personnel. The State of Florida Division of Emergency Management has a similar system called GROOVE used to alert emergency managers statewide during significant events. These systems are used to pass and share "official information" and emergency information between various federal, state and local government agencies. Both the Miami-Dade Police Department and Miami-Dade County Department of Emergency Management and Homeland Security have access to this information.

#### **Reverse 911 Telephone Notification System**

Most residents know they can call 9-1-1 to get police, fire and/or medical assistance. What they may not know is that first responders can also use a reverse 911 system to notify residents and businesses about a potential emergency circumstance. Reverse 911 systems are a valuable tool for any department to alert the community of "time critical" messages. Reverse 911 systems allow public safety departments to rapidly notify specific geographical areas by telephone. What could take hours to accomplish using a large component of staffing can be done in a fraction of that time with little impact on personnel deployment.

The capability to disseminate critical information in a very rapid manner with minimal staff means safety to residents and businesses alike. Public safety personnel who would be pulled away from assignments to conduct door-to-door notification may be left at strategic posts or to respond as needs arise during a crisis. Citizens are alerted in a more timely fashion about critical events allowing them additional and sometimes crucial time to take action, such as evacuating in the case of eminent natural disasters. The only drawbacks to the system are a) citizens may not be home or may not have a cellular phone to receive the alert message, b) in this era of telemarketing; many people hang up once they hear a recorded message. Also, due to Caller ID, many residents do not answer calls from unknown phone numbers. This system is used primarily for small scale situations that require limited public notifications such as gas leaks, hazardous materials transportation incidents, hostage situations, etc.

#### **Media Emergency Notification Systems**

Local and national media offers email subscription notifications of current events such as weather events, breaking news, traffic delays, etc. CNN, NBC 6 and other media provide these services through email, Blackberry, and PDAs free of charge.

Any resident in Miami-Dade County who has an e-mail account, cell phone, Blackberry or other handheld device can subscribe directly to these media-related alerts and receive real-time information as posted. Staff members of the Miami-Dade Department of Emergency Management and Homeland Security are subscribers of these media-related services. We routinely receive information on "breaking local or national news" that impacts Miami-Dade County.

#### **Miami-Dade Alerts**

The Miami-Dade County Department of Emergency Management is now utilizing a database system that allows for emergency alert notification. The one-year pilot program consists of three phases: a community alert notification, an employee emergency alert, and a college/university student and faculty alert.

The Community Alert Notification allows system administrators to alert residents and businesses of significant events that may affect them. Similar to the media-related alerts mentioned above, this system is also subscriber-based and uses e-mail accounts, cell phone text messaging, and other handheld devices capable of receiving text messages. The system will be used to alert residents of emergencies related to severe weather – hurricane watch/warning, evacuation and curfew orders, food and water distribution points, and other public safety related information. This system is currently available to residents; subscribers can sign up on the County's website and learn more about how the system works.

Using the Miami-Dade Alerts notification system, the County can notify employees through Employee Emergency Alerts. Large numbers or specific groups of government employees can be advised of routine and emergency situations. For example, if we have to pass emergency information about a tornado warning, we can send emergency information using the Miami-Dade Alerts system to residents who have registered to receive this information through the devices they have registered with us (e-mail, PDAs, cell phones with text messages, etc.). This is a vendor-hosted system and the Department of Emergency Management and Homeland Security is the system's administrator.

Lastly, Miami-Dade Alerts has been offered to all of our local colleges and universities for them to notify their students and faculty. The colleges are given administrative rights over their respective jurisdictions to manage their student and faculty databases. If a situation arises where the college needs to notify its students and faculty, administrators there have direct access to the Miami-Dade Alert notification system to send messages. In addition, subscribers in these jurisdictions also can be notified through the County notification system.

Universities can participate in the alert notification program free of charge and are given a user name and password to access their database of students. University administrators have the ability to determine what messages are sent and when. This partnership is part of the Mayor's emergency notification initiative.

#### **Sirens**

Sirens are another method of sending emergency alerts. The advantages of a siren alert system include:

- they could potentially be heard within a 90-percent geographic area of where the siren is located.
- they are the only passive outdoor warning method for public gathering areas.
- there is no cost to citizens nor participation required.

- the sirens themselves are a visible device and can provide some level of public comfort, with residents knowing they are available in a community.

The disadvantages of a siren system include some of the following:

- outdoor dead spots will exist
- a voice-over siren system can be hard to understand, there will be dead spots within structures both above and below ground and there is a very high cost of acquisition and ownership.

For example, the Florida Power & Light Turkey Point Nuclear Power Plant Emergency Notification includes the use of sirens. Currently, there are 49 sirens in a 10-mile radius surrounding the plant. FPL estimates each siren costs \$30,000 plus an additional \$1,000 for yearly maintenance. Additionally, the software system used to manage and operate the system can cost up to \$50,000. In a county as large as Miami-Dade, with 2,000 square miles, the use of sirens could be cost prohibitive.

#### **Other Warning Systems**

A wide variety of warning systems are designed, installed, and operated by private industry. Receivers may consist of specialized equipment or commonly available devices such as telephones or computers. Many of these systems are present around critical locations such as nuclear facilities, chemical stockpiles, oil refineries, and critical infrastructure. Many states and municipalities across the US have installed them. The principal limitations are that they are usually not interoperable, do not typically have all-hazard inputs, and their availability varies widely across the country.

Today many companies provide warnings on a subscription basis through computerized calling systems, fax, email, or digital messaging to all types of personal and mobile handheld devices. Miami-Dade County is currently using one of the many systems available by the private sector where alerts are disseminated via the Internet to email accounts, mobile and handheld devices.